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INFLUENCE OF SILKWORM FEEDING ON QUALITY MULBERRY LEAVES ON LARVAL VIABILITY AND BIOLOGICAL PARAMETERS

M. B. Soliyeva
Senior Teacher
soliyevamadina35@gmail.com

N. N. No'monov
Assistant

SH. SH. Isroilova
Student.
Andijan Institute of Agriculture and Agrotechnologies

Annotation
Feed Plays an Important Role in Achieving theHigh Productivity Traits Embodied in TheGenetics of Farm Animals. Silkworm Food Consists of theFollowing Chemical Elements: Carbohydrates, Oxygen, Hydrogen and Nitrogen, Which Are Divided into Two Groups: Inorganic and Organic. Mulberry Leaf Is an Element of theExternal Environment That Is Completely Reproduced in TheBody of Silkworm. However, due to TheMulberry Leaf, TheWorm's Organism Adapts to TheInfluence of External Environmental Conditions. TheSilkworm Feeds On Mulberry Leaves Alone During theLarval Stage. Mulberry Leaves Contain Substances Necessary for All Stages of Development of theSilkworm.

Keywords: Mulberry Leaf, Silkworm, Carbohydrate, Oxygen, Hydrogen, Cocoon, Nutrient Content, Tree Species, Nutrients, External Environment.

Introduction

Because TheChemical Composition of Mulberry Leaves Varies Considerably, Its Worm-Feeding Properties Are Not Always Uniform. In Addition to Changes In Climate And Soil Conditions, As Well As Its Age And Type, TheMulberry Tree Also Changes Under TheInfluence Of Various Man-Made Agronomic Measures. These Activities Include Tree Planting, Care, Tree Species Selection and Hybridization, And Selection. TheSilkworm Replenishes Some Of TheSubstances It Lacks In TheLeaf By Eating Large Amounts Of TheLeaf.

Mulberry Leaves Are Not Only an Energy Source For TheWorm's Organism, But Also Regulate Its Growth And Development. TheGrowth Rate Of TheWorm Also Depends

To Some Extent On TheDegree Of Darkness Of TheLeaf Given To It. Pravardi Eventually Tries To Grow TheSilkworm To A Certain Size Depending On Its Breed. However, Regardless Of TheBreed Of TheWorm And TheChemical Composition Of TheMulberry Leaf, TheAmount Of Nutrients Required To Obtain 1 Kg Of Live Cocoons Is Approximately TheSame. This Thing Was Determined By TheResults Of A Special Investigation.

Main Part

Since TheMulberry Leaf Is One Of TheNecessary Means For TheWorm To Adapt To Its Living Conditions, There Is A Certain Degree Of Difference Between TheAmount Of Nutrients Used For Metabolism From Its Body Movement And TheNutrients Used To Produce Energy Material, I.E. These Amounts Do Not Match. TheExchange Of Water In TheWorm's Body Also Depends On This.

Although People Have Domesticated TheSilkworm And Changed Its Living Conditions, They Have Not Yet Been Able To Fully Meet Their Ever-Changing Demands On Leaf Quality. For Example, In Summer And Autumn, When TheTemperature And Relative Humidity In TheLarvae Are TheSame, TheFeeding Period Is Slightly Slower Than In Spring. This Condition Occurs Due To TheSlowing Down Of TheInteraction Of Various Processes In TheBody Of TheWorm As A Result Of A Decrease In TheDegree Of Leaf Retention And Digestion. Therefore, TheOptimal Temperature In Summer Repeated Worm Feeding Is Lower Than In Spring Worm Feeding.

TheNut-Feeding Properties Of TheLeaf In Mulberry Trees, Which Are Intended For Worm Feeding In TheSummer And Autumn, Allow To Obtain A Sufficient Cocoon Yield. However, TheFact That TheQuality Of This Leaf Is Much Lower Than That Of Spring Leaves Makes It Difficult To Obtain A Cocoon Yield Equal To TheSpring Harvest In Terms Of Quantity And Quality.

Leaf Quality Also Varies Depending On Worm Feeding Techniques And Conditions. Both Of These Affect Leaf Quality, TheDegree To Which TheLeaf Is Eaten And Digested By Worms. Silkworms Feed Naturally On Growing Leaves On Mulberry Twigs. In Domesticated Conditions, They Are Fed On Leaves Collected From TheTree. TheLeaf Wears Out To Varying Degrees, Depending On TheHumidity Of TheAir In TheWorm, Its Ability To Evaporate, And TheTime It Takes For TheLeaf To Collect And Give To TheWorm. TheDead Leaf Is Rarely Eaten By Worms, But TheWorm Eats TheLeaf Until 10-20% Of TheWater Remains In It, And Then TheEating Of Such A Leaf Decreases.

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If TheRegulatory Function In TheWorm Is Lacking, TheHumidity Of TheWorm Air Should Be Lowered Or Raised. Sometimes A Decrease In Water In TheLeaf Reduces Its Quality. Due To TheIncreased Demand Of TheWorms For Water During TheRe-Feeding Of Worms In TheSummer, Slightly Moistening TheLeaves And Raising TheHumidity Of TheWormhole Are Of Great Benefit To TheWorms.

TheNutritional Value Of TheLeaf Is Determined In 3 Different Ways: Biologically, Ie By Feeding Worms, By Determining TheChemical-Leaf Elements, By Determining ThePhysical Properties Of TheLeaf. Of These, TheBiological Method Is TheMain One, And TheOther Two Methods Serve To Obtain Additional Information For TheFirst.

Results and Discussions

TheNutritional Value Of A Leaf Is Understood To Be TheNutrient Unit Of TheSilk Product Given To TheWorm. TheNutrient Content Of TheFood Is Said To Be TheSilk Raw Material Obtained In Relation To 1kg Of Eaten Leaf. Leaf Eating Is ThePercentage Of Leaves Eaten By A Worm.

Table 1 To TheLevel Of Construction Of A New Leaf Given To TheWorm Depending On Eating (In Percent)

Decrease In Water In TheLeaf, Depending On TheDegree Of Construction, In Percent	TheNew Amount Given To TheLeaf Worm, With%		
	III- Age	IV- Age	V- Age
0	100	100	100
10	90	91	93
20	58	59	82
30	39	44	62
40	21	23	53
50	-	13	32

According To N. Bahoviddinov, In Some Cases TheWorm Can Be Fed By Wetting A Slightly Withered Leaf. When Some Species Of Worms Are Given A New Leaf, They First Gnaw On TheLeaf Blade And Eat Its Flesh When TheLeaf Begins To Wither, Which Is One Of TheMeasures To Regulate TheWorm's Body's Need For Water.

The Function Of TheCocoon Should Not Only Be To Update And Slightly Moisten TheLeaf As Needed By TheWorm, But Also To Change TheDegree To Which TheLeaf Is Feeding TheWorms. Such Modification Measures Include: Feeding TheWorm With A Leaf Enriched With Mulberry Leaves, Carbohydrates And Several Other Biological Additives.

As For TheAmount Of Leaves Given, This Is Decided By TheNumber Of Leaves Given And TheSize Of TheWorm-Feeding Surface. Silkworms Eat Up To 20 G Of Leaves At TheAge Of Five. Eats Fewer Leaves In TheFirst Last Days Of Life, Mostly In TheMiddle Of Age. TheWorms Are Fed By Pulling TheLeaf Without A Band To Determine TheAmount Of Leaf Eating. TheWeight Of TheDried Leaf Is Determined From TheLeaf Samples Taken. Uneaten Leaves Are Also Detected By Drying. TheAmount Of Leaves Eaten Is Determined By Taking TheWeight Of TheLeaves Left Uneaten From TheWeight Of TheLeaves Given. For TheExperiment, TheLeaf Is Taken At 20 Grams 3 Times In 3 Repetitions, TheLeaf Samples And TheInedible Remains Of TheGan Are Taken And Dried In A Drying Cabinet. This Removes TheWorm Droppings From TheGhana. TheAmount Of Leaves Given To TheWorm And ThePart Eaten By It Determines TheCoefficient Of Leaf Erosion, I.E. ThePercentage Of Leaves Eaten Relative To TheAmount Of Leaves Given. At Present, In Our Country, TheOld Breeds Of Silkworms Are Being Replaced By New And High-Yielding Breeds. Experiments Are Being Carried Out To Determine TheAmount Of Leaves That Can Be Consumed By 1 Box (19g) Of Worms For These New Breeds.

According To TheRules Of Agrotechnics, A Box Of Silkworms Consumes A Total Of 1000-1200 Kg Of Leaves. TheNutritional Value Of Mulberry Leaf Depends On TheAmount And Ratio Of Nutrients In TheLeaf, Which Are Digested And Absorbed By TheWorm Organism. This Figure Varies In Different Varieties Of Mulberries, And TheAge Of TheMulberry Tree Depends On TheGrowing Conditions.

TheNutritional Value Of A Leaf Is Determined By TheWeight Of A Cocoon Or TheAmount Of Silk Obtained From 1 Kg Of Eaten Leaf. Not All Nutrients Eaten Are Digested By TheBody. In TheIntestine, TheLeaf Is Digested By Intestinal Juice Enzymes As Well As TheInner Epithelial Cells Of TheMidgut. In This Case, TheNutrients Of TheLeaf Are Broken Down Into Simpler Parts And Absorbed Into TheBody. For Example, It Is Converted Into Starch-Sugar, Absorbed In TheCells And Passed Into TheBlood. Fats Are Broken Down In TheIntestines Into Fatty Acids And Glycerin And Absorbed Into TheIntestinal Cells.

Undigested Nitrogenous Substances In TheBody Are Excreted In TheForm Of Feces (Faeces).

To Determine TheAbsorption Of Food, TheAmount Of Food That TheWorm Enters TheIntestine At Each Age Is Determined By TheRatio Of TheAmount Of Feces Excreted During This Period.

At TheAge Of Four, Silkworms Absorb Two-Thirds Of TheFood They Eat, And By TheAge Of Five, They Digest Half Of It. Digestion Decreases As TheYoung Worms Get

Older, As TheLarger Worms Cut Off TheLeaf Blades Larger And Do Not Disperse Well In TheGut.

An Average Of 62% Of Protein, 59% Of Fats And 40% Of Carbohydrates Are Absorbed By TheBody. Female Silkworms Eat And Digest 20% More Food Than Male Worms. TheNutritional Value Of TheMulberry Depends On TheNavigation Of TheMulberry, TheNutritional Composition And Condition Of TheLeaves (Young, Old).

Influence Of Nutrients On Silkworm Productivity: TheNutritional Value Of Mulberry Leaves Also Depends On ThePlacement Of Leaves From Mulberry Varieties. TheYoung Leaves At TheTop Of TheBranch Are Rich In Protein And Nitrogen. When Worms Are Fed With Young Leaves, TheProcesses Of Eating, Digestion And Absorption Are Accelerated.

TheKey To High Yields From Mulberry Silkworms Is To Feed On TheLeaves Of Mulberry And Nutritious Mulberry Trees.

The Results Of Research On Feeding Silkworms With Varietal Mulberry Leaves Show That Quality And Nutritious Food Reduces TheFeeding Period Of Worms, Increases TheViability Of Worms, Cocoon Yield And Its Breeding Properties. (Table 2)

Table 2 Silkworms With Navdar Mulberry Leaves TheEffect Of Nutrition On Productivity Traits

Mulberry Varieties	Worm Period, Day	Worm Viability,%	Average Weight Of Cocoon, G	Quantity Of Cocoons,%
1. Tajikistan Is Seedless	21,5	90,5	2,23	88,5
2. Folding	21,5	91,0	2,21	89,0
3. Welded	21,6	89,5	2,19	87,0
4. Uzbekistan	22,0	89,0	2,13	86,0
5. A Mixture Of Hybrids	22,0	88,0	2,10	85,0

It Is Known That TheLevel Of Productivity Of Farm Animals Depends On Their Food Supply. High-Yielding Animals Also Reduce Their Productivity Due To Malnutrition. In Animal Husbandry, Rations And Feed Norms Have Been Developed For Each Farm Animal.

In Silkworm Breeding, Leaf Norms Have Been Determined For A Box Of Worms. However, In Production Conditions, Ie In TheConditions Of Feeding Worms In Rural Households, These Norms Are Ignored, And In Many Cases There Is A Shortage Of Leaves, Which Adversely Affects TheYield.

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Table 3 Changes In Worm Feeding Period And Cocoon Performance Depending On TheLevel Of Worm Feeding

№	Worm Feeding Options	Duration Of Worm Feeding Period, Days	Worm Viability, %	Quantity Of Cocoons,%	Average Weight Of Cocoon, G	Cocoon Shell Weight, Mg	Silk Of Cocoons,%
1	Normal (100%) Feeding Of Worms	24,0	87,4	92,1	1,88	446	23,7
2	Feeding TheWorms At 50% Of TheNorm	27,0	65,2	83,0	1,33	294	22,1
3	Compared To TheSecond Option%	88,9	134,0	110,9	141,3	151,7	107,2

When TheWorms Were Fed At 50%, TheFeeding Period Was Extended To 3 Days, TheViability Was Reduced By 22.2%, TheNumber Of Cocoons Was Reduced By 8.9%, TheAverage Weight Of Cocoons Was 0.55 G, Cocoon Shell Weight Was Reduced By 152 Mg And Cocoon Silk Was Reduced By 1.6%.

Conclusion

The Nutritional Quality Of Mulberry Leaves Varies, Depending On TheType, Sex, Age, Growth Conditions, Operation, Etc. Of TheTree. Depending On TheCharacteristics. TheNutritional Quality Of TheLeaf Is Determined By TheDegree To Which It Is Eaten And Digested By TheSilkworm, And Ultimately TheAmount Of Silk Mass Formed. Consequently, There Is An Organic Relationship Between TheNutritional Quality Of TheLeaf And TheSilkworm Cocoon Mass And Silk Content That Consume It.

Leaf Quality Is A Complex Concept That Depends In Many Ways Not Only On ThePhysical Properties Of TheLeaf And TheAmount Of Chemical Elements In It, But Also On Its Quality And Their Ratio. Therefore, In Addition To TheAmount Of Protein And Sugar In TheLeaves, Its Quality Is Currently Being Tested Using Biochemical Methods.

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